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REMARKS

Introduction

This paper is in response to the Office Action mailed December 8, 2003 [herinafter "Office Action"].

The Office Action rejected claims 1-28.

On February 23, 2004, a telephone conference was held with the examiner with respect to both Clunn references: Clunn 6,426,632 B1 (hereinafter Clunn '632) and Clunn 6426 634 B1 (hereinafter Clunn '634). The Examiner clarified that Clunn '632 is nolonger cited against the application and that only a response to Clunn '634 is required. A response to Clunn '632 is not required. Applicant thanks the examiner for the clarification.

Claims 1, 2, 3, 14, and 24 are currently amended. In the amendments, markings show all current changes relative to the original version. In the amendments underlines indicate additions while double brackets and strike-throughs indicate deletions. No new matter has been added in the claim amendments. The amendments are supported by the original disclosure.

Applicant presents the following arguments in support of Claims 1-28.

Claims 29 – 34 are added herein. No new matter has been added in the new claims. The new claims are supported by the original disclosure.

Claims 1-34 are presently pending in this application.

Applicants respectfully request reconsideration of the claims, withdrawal of the rejections under 35 U.S.C. § 102 (e), and allowance of claims 1-34.

Rejection of Claims under 35 U.S.C. § 102

Claims 1-28 stand rejected under 35 U.S.C. § 102(e) providing:

A person shall be entitled to a patent unless--

(e) the invention was described in (1) an application for patent, published under section 12(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the

international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Applicant notes that: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1997)

Clunn '634

Independent claim 1 and its dependant claims 2, 3, 6, 11, independent claim 14 and its dependant claims 15, 16, 19, 21, 22, and independent claim 24 and its dependant claims 25 and 26 were rejected under 35 U.S.C. § 102(e) in view of Clunn, US Patent No. 6426634, Entitled Circuit Breaker With Integrated Self-Test Enhancements (hereinafter "Clunn").

Applicant respectfully traverses the rejection. Applicant respectfully submits that Clunn '634 does not explicity or inherently provide the combination of Applicant's invention as presented by Applicant in claims 1, 2, 3, 6, 11, 14, 15, 16, 19, 21, 22, 24, 25, and 26.

With respect to amended claim 1, amended claim 1 provides a circuit breaker including a microprocessor for controlling the amplitude and phase of test signals, and a test signal generator incorporated in the circuit breaker for providing analog test signals to trip circuitry under control of the microprocessor, where the test signals mimic the signals that would be received from the sensors. Thus, Applicant's invention is different in nature in that it provides for an analog test signal generator for testing the trip circuitry and the function of the software in the microprocessor.

With respect to amended method claim 14, Applicant has amended claim 14 rendering the rejection moot. Applicant respectfully submits that Clunn '634 does not explicity or inherently provide the combination of Applicant's invention as presented in Applicant's amended claim 14. Amended claim 14 provides for a method of testing a circuit breaker comprising testing trip circuitry by generating analog test signals with a test signal generator that is incorporated in the circuit breaker and by controlling the

amplitude and phase of the test signals to mimic the signals that would be received from circuit breaker sensors.

With respect to independent claim 24, Applicant has amended claim 24 rendering the rejection moot. Applicant respectfully submits that Clunn '634 does not explicity or inherently provide the combination of Applicant's invention as presented in Applicant's amended claim 24. Amended claim 24 provides a system for testing a circuit breaker comprising a first means for generating analog test signals, the first means being incorporated in said circuit breaker, and a second means for controlling the amplitude and phase of the test signal used in testing trip circuitry of said circuit breakers with said test signals.

As provided in Applicant's specification, Applicant's invention includes an analog test signal generator 103 whose signals 104 "mimic the monitoring signal or signals 106 that would be received from the sensors (e.g., CT and PTs) used by the circuit breaker 100 to monitor a power distribution system." [Specification, page 7, paragraph 0045 lines 103, Specification, page 6, paragraph 0042,]. Thus applicant's invention provides signals of the same nature as would be received from the sensors. Further, "[t]he signal 104 from the test signal generator 103 is transmitted to the trip circuitry 102. The trip circuitry 102 preferably treats this test signal 104 just like the monitoring signal 106 received from the breaker's sensors. Consequently, operation of the trip circuitry 102 can be tested." [Specification, page 7, paragraph 0047] Further, Applicant's invention controls amplitude and phase of the test signal: "Specifically, the microprocessor 101 controls both the amplitude and phase of the test signals 104 by controlling the voltage 109 and current 108 sources in the test signal generator 103." And according to one embodiment a D/A converter is incorporated to generate test signals: "One method of providing the current 108 and voltage 109 sources would be to use a digital-to-analog converter driven with digital signals from the microprocessor 101 representing sinusoids or other arbitrary waveforms." [specification, page 7, paragraph [0048], lines 3-8, and *See* specification, page 6, paragraph [0043]] To test a trip unit it is desirable to inject test signals to verify that the trip unit will trip the circuit breaker in a prescribed amount of time. By controlling the amplitude and phase, Applicant's

invention can test a current-time relationship or a current-phase and time relationship, voltage-time relationship or a voltage-phase and time relationship not achieved by the test pulse as described by Clunn '634. As a result, Applicants invention describes an apparatus for fully testing the operation of the test unit with test signals with respect to time mimicking the signals that would be received from the sensors.

Applicant's system also provides a means for monitoring the result on a display. "data reflecting the results of such testing can be transmitted by the microprocessor 101, over the network 122, to the workstation 123. The workstation 123 can display such results for a technician. In this way, the breaker 100 can be tested remotely without a need to visit the location of the breaker 100 unless a problem is identified." [specification, page 9, paragraph [0059], starting at line 5]

In contrast, it appears that Clunn '634 does not provide an analog test signal to the test circuitry. Instead "[t]he test waveform appears along line 166 in the form of a positive going logic pulse. In other words, it is an active high logic pulse for a predetermined duration and then allowed to decay back to the low logic level." [Clunn '634, column 8, lines 31-37] As such, it appears the Clunn '634 tests a generally basic signal level, but it does not appear to mimic the sensed signal in the manner that Applicant's invention mimics the sensed signal. A single pulse as described by Clunn '634 would not achieve the waveform testing achieved by Applicant. Further, it appears that in Clunn '634 the device only involves an A/D converter: "The current sense terminal IS is the input to an A/D converter which converts the analog signal at node 146 into digital form for processing within CPU 60."

Applicant repeats the arguments in support of claim 1 with respect to dependant claims 2, 3, 6, 11, and asserts that these dependant claims are patentable as further limitations of independent claim 1 and intervening claims.

Applicant repeats the arguments in support of independent claim 14 with respect to dependant claims 15, 16, 19, 21, 22, and asserts that claims 15, 16, 19, 21, 22, are patentable as further limitations of independent claim 14 and intervening claims.

Applicant repeats the arguments in support of claim 24 with respect to dependant claims 25 and 26, and asserts that claims 25 and 26 are patentable as further limitations of independent claim 24.

Further, with respect to the rejection of claims 2, 15, and 25, the portion of Clunn '634 cited in the Office Action, (col. 8, lines 30-37 and 43-49) appears to only relate to a test pulse "at a level to simulate the appearance of a predetermined amount of current flowing in the line conductor 10".

With respect to the rejection of claims 11, 19, 21, and 22, the portion of Clunn '634 does not appear to describe "at least one switch" "open when said trip circuitry is not being tested" as provided by Applicant in claims 11 and 19, or a "means for preventing erroneous test signals from causing a response by said trip circuitry" as provided by Applicant in claim 21, where the means "comprise a switch in a connection between said trip circuitry and said test signal generator, said switch being controlled so as to be open when said trip circuitry is not being tested" as provided by Applicant in claim 22.

In contrast Clunn '634 appears to rely upon the short duration of the test pulse. Clunn '634 provides: "The duration of the test for the trip output is short enough that the capacitor across the gate resistor 46 shown in FIG. 1 does not have enough time to fully charge up to the value needed to reliably turn on the triac 30, thus inhibiting the gate drive to the triac while permitting the TRIP output circuitry of CPU 60 to demonstrate that it has the ability to provide the trip level needed when the occasion demands." [Clunn '634, column 15, lines 20-27]

Accordingly, Applicant respectfully requests reconsideration of the claims, withdrawal of the rejections under 35 U.S.C. § 102 (e), and allowance of claims 1, 2, 3, 6, 11, 14, 15, 16, 19, 21, 22, 24, 25, and 26.

Applicant further reserves the right to swear behind the references cited.

Rejection Of Claims Under 35 U.S.C. § 103(a)

Claims 4, 5, 7, 8, 9, 10, 12, 13, 17, 18, 20, 23, and 28 stand rejected under 35 U.S.C. §103(a).

"Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case." MPEP § 2141 (emphasis in original).

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143.

Applicant respectfully traverses the rejection under 35 U.S.C. § 103(a). Applicants submit that the rejection under 35 U.S.C. § 103(a) is improper because there is no suggestion or motivation to modify or combine the teachings of *Clunn* '634 and the additional references cited, nor is there any indication of a reasonable expectation of success, nor do the prior art references, when combined, teach or suggest all of the claim limitations.

Applicant repeats the statements with respect to the rejection of independent claim 1 under 35 USC 102(e), here with respect to rejection of dependant Claims 4 and 5 under 35 U.S.C. § 103 over *Clunn '634* in view of *Whitney*. Applicant has amended claim 3 for clarity. Further, the connections in *Whitney* do not relate to viewing or controlling a testing unit for a circuit breaker as provided by *Applicant* in independent claim 1 and intervening amended claim 3 from which claims 4 and 5 depend. Instead Whitney appears related to a specific circuit board configuration and connections to that specific configuration. If the Examiner maintains that there is motivation to modify or combine the teachings of *Clunn* and *Whitney*, Applicants respectfully request that the Examiner furnish a basis for the stated motivation. MPEP 2144.03; In re Lee, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002). Applicants respectfully submit that the rejection of Claim 4 and 5 under 35 U.S.C. § 103(a) over *Clunn* in view of *Whitney* is improper.

Applicant repeats the statements with respect to the rejection of independent claim 1 and 14 under 35 USC 102(e), here with respect to rejection of dependant claims 7, 8, 9, 17, and 27 under 35 U.S.C. § 103 over *Clunn '634* in view of *Kochanski* et al.

Further, the interface connections in *Kochanski* do not relate to viewing or controlling a testing unit for a circuit breaker as provided by *Applicant* in independent claims 1 and 14 and intervening claims from which claims 7, 8, 9 and claims 17 and 27 depend. Instead, *Kochanski* appears to relate to modular electrical units for providing portable power. If the Examiner maintains that there is motivation to modify or combine the teachings of *Clunn* and *Kochanski*, Applicants respectfully request that the Examiner furnish a basis for the stated motivation. MPEP 2144.03; In re Lee, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002). Applicants respectfully submit that the rejection of claims 7, 8, 9, 17, and 27 over Clunn in view of *Kochanski* et al. is improper.

Applicant repeats the statements with respect to the rejection of independent claim 1 and 14 under 35 USC 102(e), here with respect to rejection of dependant claims 10, 18 and 28 under 35 U.S.C. § 103 over *Clunn '634* in view of *Dollar* et al. Further, the interface connections in *Dollar* do not relate to a circuit breaker with a test signal generator incorporated in the circuit breaker as provided by *Applicant* in independent claims 1 and 14 and 24 and intervening claims from which claims 10 and 18 and 28 depend. Instead, *Dollar* appears to relate to a portable tester. If the Examiner maintains that there is motivation to modify or combine the teachings of *Clunn* and *Dollar*, Applicants respectfully request that the Examiner furnish a basis for the stated motivation. MPEP 2144.03; In re Lee, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002). Applicants respectfully submit that the rejection of claims 10, 18, and 28 over Clunn in view of *Dollar*, II et al. is improper.

Applicant repeats the statements with respect to the rejection of independent claim 1 and 14 under 35 USC 102(e), here with respect to rejection of dependant claims 12, 13, 20, and 23 under 35 U.S.C. § 103 over *Clunn '634* in view of *Stumme* et al. Further, the connections in *Stumme* do not relate to a circuit breaker with a test signal generator incorporated in the circuit breaker as provided by *Applicant* in independent claims 1 and 14 and 24 and intervening claims from which claims 12, 13, 20, and 23 depend. Instead, *Stumme* appears to relate to a portable tester. If the Examiner maintains that there is motivation to modify or combine the teachings of *Clunn* and *Stumme*, Applicants respectfully request that the Examiner furnish a basis for the stated

motivation. MPEP 2144.03; In re Lee, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002). Applicants respectfully submit that the rejection of claims 12, 13, 20, and 23 over Clunn in view of *Stumme* is improper.

Accordingly, Applicant respectfully requests that the rejection of Claims 4, 5, 7, 8, 9, 10, 12, 13, 17, 18, 20, 23, and 28 under 35 U.S.C. §103(a) be withdrawn and the claims allowed. Applicant further reserves the right to swear behind the references cited.

Conclusion

Applicant believes that all objections and rejections have been overcome and respectfully requests that a timely Notice of Allowance be issued in view of the amendments and discussion. If the Examiner has any further questions or concerns, the Examiner is invited to contact the Applicant's undersigned attorney.

Respectfully submitted,

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